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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,766	06/26/2003	Byung Chul Ahn	8733.832.00	4488

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EXAMINER

TON, MINH TOAN T

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 06/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/603,766

Applicant(s)

AHN ET AL.

Examiner

Toan Ton

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 and 27-33 is/are pending in the application.
- 4a) Of the above claim(s) 1-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-19, 22, 23, 27-29, 32 and 33 is/are rejected.
- 7) ☒ Claim(s) 20, 21, 26, 30 and 31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 17-19, 22-23, 27-29 and 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ko et al (US 6788374) in view of Kim et al (US 6583836).

Ko discloses a multi-domain LCD device comprising (see at least Figures 5-7, 9-11): first and second substrates (40a, 40); gate and data lines (not shown) crossing each other on the first substrate to define a pixel region; a pixel electrode 41 in the pixel region; a common electrode 46 on the second substrate; a side electrode 45 (Applicant's common auxiliary electrode) in the pixel region corresponding the periphery of the pixel region and having a crossing portion crossing the pixel region, the crossing portion of the side electrode crossing the pixel region dividing the pixel region into at least into (sub) regions, the portion of the side electrode being substantially parallel to the gate line; dielectric protrusions/electric field inducing windows (47, 47a) on the common electrode in respective ones of the regions of the pixel region; and an (inherently) undoped liquid crystal layer sandwiched between the first and second substrates.

The limitation not disclosed 'the crossing portion of the common auxiliary electrode being substantially parallel to the gate line for the entire length of the crossing portion'. Kim discloses the common auxiliary electrode substantially parallel to the gate line and the pixel electrode formed to partially overlap the common auxiliary electrode so that a storage capacitor can be

Art Unit: 2871

extended for achieving advantages such as uneven electric field intensity is controlled to remove disclination (see at least Figure 6D/6G, col. 5, 3rd paragraph). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the crossing portion of the common auxiliary electrode being substantially parallel to the gate line for the entire length of the crossing portion for achieving advantages such as uneven electric field intensity is controlled to remove disclination.

Ko discloses the common auxiliary electrode having portions crossing the pixel region such that the pixel region has at least four regions, and wherein the dielectric protrusions are located in respective ones of the at least four regions wherein two of the dielectric protrusions are parallel to the gate line and two the dielectric protrusions are perpendicular to the gate line (see at least horizontal portions of the side electrode being parallel to the gate line, vertical portions of the side electrode being perpendicular to the gate line in at least Figures 9-11)

Ko discloses the dielectric protrusions/electric field inducing windows diagonally formed in the regions of the pixel region not to be parallel with each other (see at least Figures 5-7, 9-11)

The use twisted nematic (TN) liquid crystal material in TFT-LCD is common and known in the art for advantages such as contrast improvement (in TN TFT-LCD: the liquid crystal molecules are typically oriented about 0° to 90° from the one substrate to the other and a typically pretilt angle is about 1° for advantages such as wide viewing angle). Therefore, it would have been at least obvious to one of ordinary skill in the art to employ the use twisted nematic (TN) liquid crystal material in TFT-LCD, as common and known in the art for advantages such as contrast improvement (in TN TFT-LCD: the liquid crystal molecules are

Art Unit: 2871

typically oriented about 0° to 90° from the one substrate to the other, a typical pretilt angle is about 1° for advantages such as wide viewing angle).

Allowable Subject Matter

3. Claims 20-21, 26 and 30-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record does not anticipate nor render obvious to one ordinary skilled in the art a liquid crystal display device comprising a combination of various elements as claimed, more specifically, the combination of 'the common auxiliary electrode in the pixel region corresponding to the periphery of the pixel region and having a crossing region crossing the pixel region, the crossing portion of the common auxiliary electrode parallel to the gate line for the entire length of the crossing portion and dividing the pixel region into at least two sub-regions' and 'dielectric protrusions/electric field inducing windows on the common electrode in respective ones of the sub-regions of the pixel region' and 'one of the dielectric protrusions is parallel to the gate line and another of the dielectric protrusions is perpendicular to the gate line' (claims 20-21, 30-31); the combination of 'the common auxiliary electrode in the pixel region corresponding to the periphery of the pixel region and having a crossing region crossing the pixel region, the crossing portion of the common auxiliary electrode parallel to the gate line for the entire length of the crossing portion and dividing the pixel region into at least two sub-regions' and 'dielectric protrusions/electric field inducing windows on the common electrode in respective ones of the

Art Unit: 2871

sub-regions of the pixel region' and 'the common auxiliary electrode overlapped with adjacent gate and data lines' (claim 26).

Response to Arguments

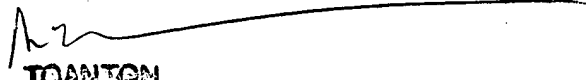
4. Applicant's arguments with respect to all pending claims have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan Ton whose telephone number is (571) 272-2303.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

June 5, 2006


TOAN TON
PRIMARY EXAMINER